

REMARKS

In response to the above-identified Final Office Action, Applicants seek reconsideration thereof. In this response, Applicants do not amend, cancel, or add any new claims. According, Claims 1-5, 7-13, 15, 17-24, and 26-30 are pending.

I. Claims Rejected Under 35 U.S.C. §103(a)

The Examiner rejects claims 1-5, 7-13, 15, 18-24, 27, 28 and 30 under 35 U.S.C. 103(a) as being obvious over U.S. Patent No. 5,764,483 issued to Ohashi et al. ("Ohashi") in view of U.S. Patent No. 6,026,896 issued to Hunter et al. ("Hunter"). Applicants respectfully traverse the rejection.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all of the claim limitations. See MPEP § 2143; see also In re Ray Baeck, 947 F.2d 488; 20 USPQ 2d 1438 (Fed. Cir. 1991).

In making the rejection, the Examiner characterizes Ohashi as showing a cooling unit and method for electronic equipment comprising: coupling a first heat transfer plate (14) to an electronic device (12) and a first part of a portable computing device (10); a second heat transfer plate (16 and 36) and a second part of the computing device (8) coupled to the first heat transfer plate; a closed loop flexible (plastic, rubber) tube (18) that fluidly joins the first and second heat transfer plates together; the use of a heat transfer medium (water, oil, liquid refrigerant); the use of a pump (40) coupled to the tube, wherein it would have been obvious to one of ordinary skill in the art at the time of the invention for the pump to circulate the heat transfer fluid at a rate of 1 milliliter/second to 10 milliliter/second to efficiently cool the electronic components; the use of a disconnect connection (44A and 44B); the heat transfer plate comprises a plate-fin type liquid heat transfer plate; and the use of extensively dissipating heat (10 watts to 50 watts) at high capacities from the heat radiating plate. See Paper No. 21, pages 2-3 (citing Ohashi, col. 2, lines 45-50). In addition, the Examiner

admits “Ohashi fails to disclose sensing the temperature of the electronic device and causing the fluid to move when the threshold temperature is detected.” Paper No. 21, page 3. The Examiner relies on Hunter to cure the defects of Ohashi.

The Examiner characterizes Hunter as teaching “the use of cooling computer enclosures comprising; a temperature sensor probe (36) that senses the temperature of the electronic device, which causes fluid to move when the threshold temperature is, detected.” Paper No. 21, page 3 (citing Hunter, col. 3, lines 29-35, and col. 4, lines 51-64). The Examiner alleges, “it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the cooling unit of Ohashi with a temperature sensor that senses the temperature of the electronic device, and initiates fluid movement when the threshold temperature is detected.” Paper No. 21, page 3. The Examiner asserts, “doing so would provide an optimal condition of cooling electronic devices.” Paper No. 21, page 4.

In Applicants’ Response to Office Action mailed July 9, 2003, Applicants discussed that the necessary motivation to combine Ohashi with Hunter does not exist since Hunter discloses “a system for controlling the temperature of multiple components or devices of semiconductor processing equipment.” Response to Office Action, dated July 9, 2003, page 6 (citing Hunter, col. 3, lines 29-31). In response, the Examiner asserts “Hunter discloses a cooling system for controlling the temperature of multiple components or devices of semiconductor processing equipment.” Paper No. 21, page 5 (citing Hunter, col. 3, lines 30-40; and col. 4, lines 37-50). The Examiner also alleges, “it would have been very obvious to one of ordinary skill in the art at the time of the invention for Hunter’s temperature control system for processing or fabricating semiconductors to have an electromechanical computing device or an electronic computer device for the purpose of precise manufacturing of semiconductors and temperature regulation, as stated in the Abstract.” Paper No. 21, page 5. Applicants respectfully disagree with the Examiner.

Hunter teaches a device relating to “temperature control systems for semiconductor processing equipment.” Hunter, col. 1, lines 6-7. More particularly, Hunter’s device “relates to

heat transfer fluid systems for use in temperature control of various semiconductor processing chambers.” Hunter, col. 2, lines 7-10. The sections of Hunter cited by the Examiner teach:

The system includes a source of a heated or chilled fluid that is distributed to multiple process components for use in heating or cooling of those components. The multiple process components may be part of the same chamber or process unit, serve different process units in the same or different cluster tool, serve a combination of stand alone process units and cluster tools, or any combination of process components located in a common fabrication facility. Hunter, col. 3, lines 32-39.

In addition, process component 14:

...can be any part of a semiconductor processing device or utility that benefits from heating or cooling, including, but not limited to, the support member or pedestal, process chamber walls, remote plasma sources and cool down chambers. It should also be recognized that the process 16 can be any type of semiconductor process that benefits from heating or cooling, including, but not limited to, physical vapor deposition, metal and dielectric chemical vapor deposition, chemical-mechanical polishing, plasma etching and the like. Hunter, col. 4, lines 40-50.

Applicants respectfully submit the Examiner is engaging in impermissible hindsight in view of Applicants’ disclosure by assuming Hunter teaches cooling down of a computer. Hunter teaches cooling down the tools used to fabricate semiconductor processing equipment. The Examiner alleges that Hunter’s temperature control for fabricating semiconductors may have a electro-mechanical computing device or an electronic computer device for the purpose of precise manufacturing of semiconductors and temperature regulation. However, Hunter does not disclose any such electro-mechanical computing device or electronic computer device as alleged by the Examiner.

The Examiner is respectfully reminded that the motivation to combine the references must be in the references themselves. Here, Hunter explicitly discloses cooling for support members or pedestals, process chamber walls, remote plasma sources and cool down chambers. See Hunter, col. 4, lines 40-45. These devices are not computing devices. There is no teaching or suggestion anywhere of a computing device capable of being cooled by Hunter’s disclosure. Rather, Hunter cools the components relating to fabrication or the fabrication facility. See Hunter, Abstract. The Examiner cannot impute into the reference anything that is not implicitly or explicitly disclosed in

the reference. Thus, since there is no motivation either implicitly or explicitly disclosed within the references to combine Ohashi and Hunter, Hunter fails to cure the defects of Ohashi.

The failure of Hunter to cure the defects of Ohashi is fatal to the obviousness rejection. Therefore, independent claim 1 is not obvious over Ohashi in view of Hunter. Accordingly, Applicants respectfully request withdrawal of the rejection of claim 1.

Claims 2-5 and 7-10 each depend from claim 1 and include all of the limitations thereof. Therefore, claims 2-5 and 7-10 are not obvious at least for the same reasons as claim 1. Accordingly, Applicants respectfully request withdrawal of the rejection of claims 2-5 and 7-10.

Regarding the rejection of independent claim 11, the Examiner characterizes the combination of Ohashi and Hunter as teaching all of the limitations of claim 11. Applicants respectfully submit that the lack of motivation to combine these references discussed above is equally applicable to claim 11. In addition, among other elements, claim 11 includes a heat exchange system comprising a temperature sensor coupled to a tube and a pump.

As discussed above, the Examiner admits Ohashi fails to disclose sensing the temperature of the electronic device and characterizes Hunter as teaching a temperature sensor probe (36) that sense the temperature of the electronic device to cure the defects of Ohashi. However, claim 11 recites a temperature sensor coupled to a tube and a pump. Thus, the Examiner has failed to establish a *prima facie* case of obviousness since the Examiner has failed to establish at least these elements.

In addition, Applicants have reviewed Hunter and respectfully submit Hunter does not teach or suggest a temperature sensor coupled to a tube and a pump. Hunter teaches that temperature sensors 36 are disposed in thermal communication with the associated process components. See Hunter, col. 4, lines 52-55. Therefore, sensor 36 is associated with the process components and is not coupled to a tube and a pump. Therefore, Hunter fails to teach or suggest at least these elements of claim 11. Thus, Hunter fails to cure the defects of Ohashi.

The failure of Hunter to cure the defects of Ohashi is fatal to the obviousness rejection. Therefore, claim 11 is not obvious over Ohashi in view of Hunter. Accordingly, Applicants respectfully request withdrawal of the rejection of independent claim 11.

Claims 12-13, 15 and 18-22 each depend from claim 11 and include all of the elements thereof. Therefore, claims 12-13, 15 and 18-22 are not obvious at least for the same reasons as claim 11. Accordingly, Applicants respectfully request withdrawal of the rejection of claims 12-13, 15 and 18-22.

Regarding the rejection of independent claim 23, the Examiner characterizes the combination of Ohashi and Hunter as teaching all of the limitations of claim 23. Applicants respectfully submit that the lack of motivation to combine these references discussed above is equally applicable to claim 23. In addition, among other elements, claim 23 includes a heat exchange system comprising a temperature sensor coupled to a tube and a heat generating element.

As discussed above, the Examiner admits Ohashi fails to disclose sensing the temperature of the electronic device and characterizes Hunter as teaching a temperature sensor probe (36) that sense the temperature of the electronic device to cure the defects of Ohashi. However, claim 23 recites a temperature sensor coupled to a tube and a heat generating element. Thus, the Examiner has failed to establish a *prima facie* case of obviousness since the Examiner has failed to establish at least these elements.

In addition, Applicants have reviewed Hunter and respectfully submit Hunter does not teach or suggest a temperature sensor coupled to a tube and a heat generating element. Hunter teaches that temperature sensors 36 are disposed in thermal communication with the associated process components. See Hunter, col. 4, lines 52-55. Therefore, sensor 36 is associated only with the process components and is not coupled to a tube and a heat generating element. Therefore, Hunter fails to teach or suggest at least these elements of claim 23. Thus, Hunter fails to cure the defects of Ohashi.

The failure of Hunter to cure the defects of Ohashi is fatal to the obviousness rejection. Therefore, claim 23 is not obvious over Ohashi in view of Hunter. Accordingly, Applicants respectfully request withdrawal of the rejection of independent claim 23.

Claims 24 and 27 each depend from claim 23 and include all of the elements thereof. Therefore, claims 24 and 27 are not obvious at least for the same reasons as claim 23. Accordingly, Applicants respectfully request withdrawal of the rejection of claims 24 and 27.

Regarding the rejection of independent claim 28, the Examiner characterizes the combination of Ohashi and Hunter as teaching all of the limitations of claim 28. Applicants respectfully submit that the lack of motivation to combine these references is equally applicable to claim 28. In addition, among other elements, claim 28 includes a heat exchange system comprising a temperature sensor coupled to a heat generating element and a pump.

As discussed above, the Examiner admits Ohashi fails to disclose sensing the temperature of the electronic device and characterizes Hunter as teaching a temperature sensor probe (36) that sense the temperature of the electronic device to cure the defects of Ohashi. However, claim 23 recites a temperature sensor coupled to a heat generating element and a pump. Thus, the Examiner has failed to establish a *prima facie* case of obviousness since the Examiner has failed to establish at least these elements.

In addition, Applicants have reviewed Hunter and respectfully submit Hunter does not teach or suggest a temperature sensor coupled to a heat generating element and a pump. Hunter teaches that temperature sensors 36 are disposed in thermal communication with the associated process components. See Hunter, col. 4, lines 52-55. Therefore, sensor 36 is associated only with the process components and is not coupled to a heat generating element and a pump. Therefore, Hunter fails to teach or suggest at least these elements of claim 28. Thus, Hunter fails to cure the defects of Ohashi.

The failure of Hunter to cure the defects of Ohashi is fatal to the obviousness rejection. Therefore, claim 28 is not obvious over Ohashi in view of Hunter. Accordingly, Applicants respectfully request withdrawal of the rejection of independent claim 28.

Claim 30 depends from claim 28 and includes all of the elements thereof. Therefore, claim 30 is not obvious at least for the same reasons as claim 28. Accordingly, Applicants respectfully request withdrawal of the rejection of claim 30.

II. Claims Rejected Under 35 U.S.C. §103(a) As Obvious Over Ohashi In View Of Hunter and In Further View of Mizuno

The Examiner rejects claims 7, 17, 26 and 29 under 35 U.S.C. § 103(a) as being obvious over Ohashi in view of Hunter, and further in view of U.S. Patent No. 5,333,676 issued to Mizuno ("Mizuno"). Applicants respectfully traverse the rejection.

In making the rejection, the Examiner alleges Ohashi's invention, as modified by Hunter, discloses all of the claimed limitations except for a fluid container coupled to a tube having a sensor for sensing when the tube is low in a fluid container. See Paper No. 13, page 4. Applicants respectfully submit that the discussion above regarding a lack of motivation to combine Ohashi and Hunter is equally applicable to the rejection of claims 7, 17, 26 and 29. Moreover, the discussion above regarding this combination's failure to teach or suggest a heat sensor coupled to a tube and a pump is equally applicable to claim 17. In addition, the discussion above regarding this combination's failure to teach or suggest a heat sensor coupled to a tube and a heat generating element is equally applicable to claim 26. Also, the discussion above regarding this combination's failure to teach or suggest a heat sensor coupled to a heat generating elements and a pump is equally applicable to claim 29. Therefore, the combination of Ohashi and Hunter fails to teach or suggest each of the elements of claims 7, 17, 26 and 29. The Examiner relies on Mizuno to cure the defects of Ohashi and Hunter.

The Examiner characterizes Mizuno as teaching a cooling system for electronic devices comprising a fluid container (14) coupled to a tube having a sensor (21) for sensing when the fluid is low in a fluid container. Mizuno teaches a cooling abnormality detection system for external electronic equipment. See Mizuno, col. 3, lines 30-41. "The protection unit is arranged to stop the

power supply to a given piece of electronic equipment when a cooling abnormality of the given electronic equipment is detected...” Mizuno, col. 3, lines 41-46.

Mizuno teaches a cooling system for external electronic equipment, whereas the rejected claims cool the interior of a computing device. Therefore, there is no suggestion or motivation to combine Mizuno with Ohashi and Hunter to read on claims 7, 17, 26 and 29. Accordingly, Applicants respectfully request withdrawal of the rejection of claim 7.

In addition, the Examiner does not cite Mizuno for teaching or suggesting a heat sensor coupled to a tube and a pump as defined in claim 17. Moreover, in reviewing Mizuno Applicants cannot find any sections that teach or suggest a heat sensor coupled to a tube and a pump since Mizuno only teaches temperature sensors arranged with each piece of external electrical equipment. See Mizuno col. 4, lines 31-34.

Therefore, Mizuno fails to cure the defects of Ohashi and Hunter. Accordingly, Applicants respectfully request withdrawal of the rejection of claim 17.

Also, the Examiner does not cite Mizuno for teaching or suggesting a heat sensor coupled to a tube and a heat generating element as defined in claim 26. Moreover, in reviewing Mizuno Applicants cannot find any sections that teach or suggest a heat sensor coupled to a tube and a heat generating element since Mizuno only teaches temperature sensors arranged with each piece of external electrical equipment. See Mizuno col. 4, lines 31-34.

Therefore, Mizuno fails to cure the defects of Ohashi and Hunter. Accordingly, Applicants respectfully request withdrawal of the rejection of claim 26.

In addition, the Examiner does not cite Mizuno for teaching or suggesting a heat sensor coupled to a heat generating element and a pump as defined in claim 29. Moreover, in reviewing Mizuno Applicants cannot find any sections that teach or suggest a heat sensor coupled to a heat generating element and a pump since Mizuno only teaches temperature sensors arranged with each piece of external electrical equipment. See Mizuno col. 4, lines 31-34.

Therefore, Mizuno fails to cure the defects of Ohashi and Hunter. Accordingly, Applicants respectfully request withdrawal of the rejection of claim 29.

CONCLUSION

In view of the foregoing, it is believed that all claims now pending are now in condition for allowance and such action is earnestly solicited at the earliest possible date. If there are any additional fees due in connection with the filing of this response, please charge those fees to our Deposit Account No. 02-2666.

If necessary, the Commissioner is hereby authorized in this, concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17, particularly, extension of time fees.

Respectfully submitted,

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Dated: 10/16/03

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Nadya Gordon 10/16/03
Nadya Gordon Date